

CLAIMS

What is claimed is:

1. A method comprising:
applying power to a voltage supply;
generating a first signal that indicates a state of reduced work capability in an integrated circuit (IC) that is being powered by the voltage supply; and
applying the first signal to increase the power efficiency of the voltage supply while the supply is powering the IC in the reduced work capability state.
2. The method of claim 1 wherein the first signal is generated by a processor die.
3. The method of claim 2 wherein the first signal is generated by a system chipset.
4. The method of claim 1 wherein the IC is placed into the state of reduced work capability because one of (1) a thermal overload condition is approaching, (2) a battery is near depletion, and (3) the IC is idle.
5. An integrated circuit (IC) die comprising:
a first port in said IC die to receive a supply voltage from a voltage regulator having synchronous and non-synchronous operation capabilities; and
a second port in said IC die to provide a signal that indicates work capability of the IC die and selects between said synchronous and non-synchronous operations.
6. The IC die of claim 5 wherein the signal is a digital signal which when asserted indicates increased work capability, and when deasserted indicates reduced work capability in the IC die.

7. An integrated circuit (IC) processor comprising:
 - a first port in said processor to receive a supply voltage from a switching voltage regulator having synchronous and non-synchronous operation capabilities; and
 - a second port in said processor to provide a signal that indicates a work capability state of the processor and changes the regulator to said non-synchronous operation without changing the supply voltage.
8. An apparatus comprising:
 - a printed wiring board having a pad footprint for an integrated circuit (IC) processor wired to receive a supply voltage from a voltage regulator having synchronous and non-synchronous operation capabilities, the pad footprint is wired to further provide a signal from the IC processor that indicates a work capability state of the IC processor and is wired to select between the synchronous and non-synchronous operations of the regulator.
9. The apparatus of claim 8 in combination with an IC processor installed on the board to receive the supply voltage and provide the signal.
10. The apparatus of claim 8 in combination with a voltage regulator installed on the board to provide the supply voltage and receive the signal.
11. The apparatus of claim 10 in combination with an IC processor installed on the board to receive its supply voltage and provide the signal.